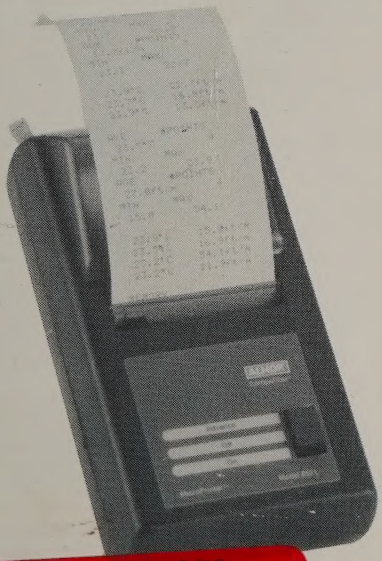
ALNOR®

CompuFlow®

microprinter™ model 8521

OWNER'S MANUAL



GE Rental/Lease

Rental Accessory

Failure to return this item will result in a minimum charge of $100.00

1-800-GE-RENTS GE-11

SAFETY NOTICE

Observe all necessary precautions when operating the CompuFlow Microprinter in the vicinity of moving equipment such as motors and blowers. The user must exercise care to insure so that the cable of the printer and mating instrument do not interfere with any moving equipment.

CAUTION

The operating temperature range of the printer is 50° to 104°F (10° to 40°C) and should not be exceeded. Poor quality printing with possible damage to the printer's motor may result if the temperature range is exceeded.

WARRANTY

Warranty information is specified on the last page of the manual. The reply card is enclosed elsewhere in this package. Failure to return the reply card may void the warranty.

WARNING

Opening or otherwise attempting to service your Alnor printer will void the warranty or factory calibration. Please read the warranty statement carefully.

TRADEMARKS

The following are Trademarks of the ALNOR Instrument Company:

AIRGARD
ALNOR
AL-TEMP
BALOMETER
COMPUFLOW
DEWPOINTER
DIGICON
DIGITHERM
MICROPRINTER
PREZZURGARD
PYROCON
PYROLANCE
PYROMATIC
PYROPOINT
PYROTAC
PYROTROLLER
THERMOCON
VELOMETER
VELOMETER JR.

Entire Contents Copyright © 1993
ALNOR INSTRUMENT COMPANY
Skokie, Illinois 60077 U.S.A.

TABLE OF CONTENTS

General Description 2
Preparation for Use 3
Operation 4
Step By Step Operation 7
List of Parts 10
Maintenance 10
Troubleshooting Guide 12
Specifications 14
Warranty/Repair Information 17
Instructions for Return 18
Warranty. 19

LIST OF FIGURES

Figure 1. CompuFlow Microprinter with Mating Instrument 2
Figure 2. Front View of Microprinter 4
Figure 3. Bottom View of Microprinter 6
Figure 4. Paper Roll Cover Removal 7
Figure 5. Installing Paper 8
Figure 6. Sample Microprinter Output (Self Test) 9

LIST OF TABLES

Table 1. Description of Microprinter Features 5
Table 2. Troubleshooting Procedures 12

GENERAL DESCRIPTION

The CompuFlow Microprinter shown in Figure ! is a portable thermal printer. It is the perfect hardcopy device for the ALNOR CompuFlow or similar instrument, and can be used also as a general purpose RS-232 printer. The Microprinter comes complete with battery charger and an initial supply of paper. About 500 lines of data can be printed before the batteries in the printer need to be recharged. Actual battery life depends on the number of lines printed and the condition of the batteries when the printer is turned on.

The CompuFlow Microprinter comes in an impact resistant plastic case. Its small size and weight allow it to easily be worn at the waist by means of a belt clip, freeing both hands to operate the mating instrument.

Figure 1. CompuFlow Microprinter with Mating Instrument

PREPARATION FOR USE

1. Remove the Microprinter and mating instrument from the case.
2. Connect the Microprinter to the mating instrument. Grasp the printer's connector at the end of the cable, and gently slide it into the instrument's printer output. Make sure the lock engages firmly.
3. Prepare the mating instrument for use as described in its manual.
4. The printer normally comes from the factory with a roll of paper already installed. At this point, the printer is ready for operation. If paper is not installed in the printer, read the section titled STEP BY STEP OPERATION located in the OPERATION section of this manual.
5. Charge the printer's batteries when it is used for the first time, or if it has not been used for several weeks.

OPERATION

The operating controls and features of the model 8521 CompuFlow Microprinter are illustrated in Figures 2 and 3 and described in Table 1.

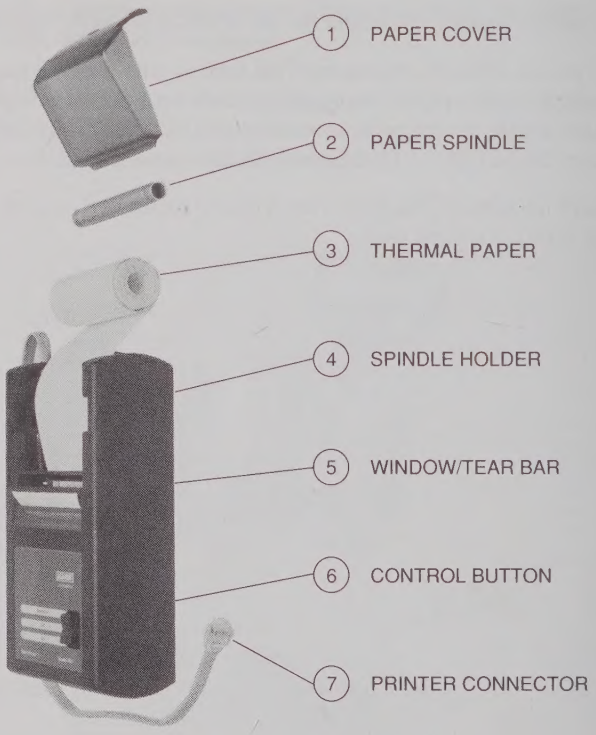


Figure 2. Front View of Microprinter

Table 1. Description of Microprinter Features

INDEX NO.	NAME	DESCRIPTION
1	Paper Cover	A removable paper cover is provided to protect the paper roll from possible damage when in use. To remove cover, gently press the rear of the cover inward about 1/8 inch and lift up. To attach the cover, hold it so that the long tab is inserted into the printer case. Then, while pushing the rear of the cover inward, guide the two rear tabs into the case until the cover snaps in place.
2	Paper Spindle	The spindle is inserted through the center of the paper roll and is used to hold the paper in place.
3	Thermal Paper	Paper used with the printer is heat sensitive.
4	Spindle Holder	The spindle holder is an integral part of the printer case. The paper spindle is held in place by the spindle holder.
5	Window/Tear Bar	The window allows the user to see the last line printed. Also, the paper may be neatly torn at this location.
6	Control Button	Pressed in the ADVANCE position, it feeds paper, and 8 consecutive line feeds start the self test procedure. In the OFF position (center), it turns off the printer. Locked in the ON position, the printer outputs information from the companion instrument.
7	Printer Connector	A locking 6-pin connector attaches the Microprinter to the mating instrument.

Table 1. Description of Microprinter Features (Cont.)

INDEX NO.	NAME	DESCRIPTION
8	Belt Clip	A belt clip is located on the back of the Microprinter.
9	Contrast Adjustment	Varies printing contrast; turn clockwise for darker printing.
10	Low Battery Indicator	This light will shine when batteries need a recharge.
11	Charger Input	Connector for the battery charger.
12	Battery Charger	Wall adapter to recharge batteries in the printer.

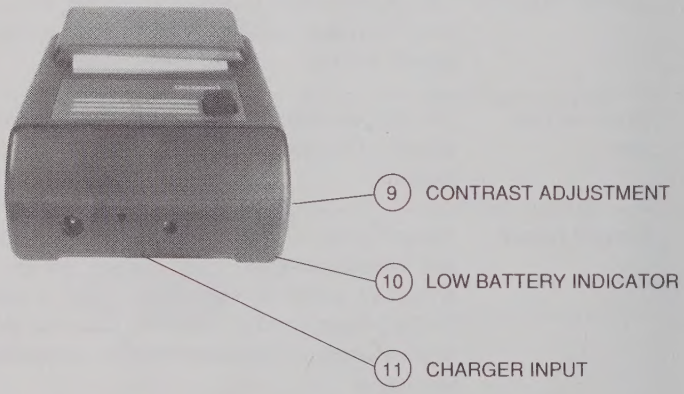


Figure 3. Bottom View of Microprinter

STEP BY STEP OPERATION

1. Plug the Microprinter into the mating instrument as described in the PREPARATION FOR USE SECTION. Turn on the printer, and then turn on the mating instrument.

2. To install a fresh roll of paper, make a clean straight cut across the free end of the paper.

3. As shown in Figure 4, remove the paper roll cover by pushing inward about 1/8 inch on the rear of the cover and then lifting up.

4. Remove the used roll of paper from the Microprinter by gently pulling straight out on the roll. Save the paper spindle for the fresh roll of paper.

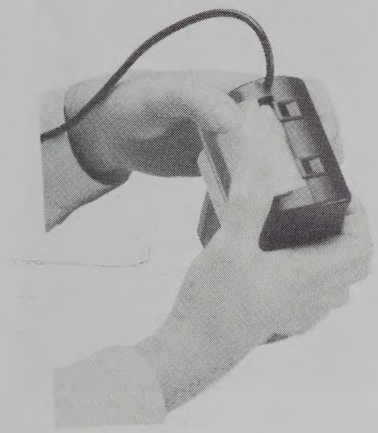


Figure 4. Paper Roll Cover Removal

5. Install the fresh roll of paper by inserting the free end into the slot. (The printing surface of thermal paper is the outside surface on the roll, so the printing surface is underneath when the end is inserted in the slot.) Note that the fresh roll is not yet inserted into the spindle clips. Push the paper forward until a slight resistance is felt. At this point, depress the CONTROL button to the ADVANCE position to feed the paper into the printer. Hold the button down until paper emerges from the top of the Microprinter. Release the button.

6. Insert the paper spindle into the center of the paper roll. As necessary, wind up any paper slack onto the new roll. Take the paper and insert it between the spindle clips as shown in Figure 5.

Figure 5. Installing Paper

7. To attach the cover, hold it so that the long tab is inserted into the printer case. Then, while pushing the rear of the cover inward, guide the two rear tabs into the case until the cover snaps in place.

8. The Microprinter may be worn at the waist by attaching the printer to a user's belt with the clip provided at the bottom (back) of the printer.

9. The Microprinter is now ready for operation. Follow the companion instrument's instructions in order to send output to the Microprinter. Vary the CONTRAST ADJUSTMENT with a screwdriver until print darkness is optimal.

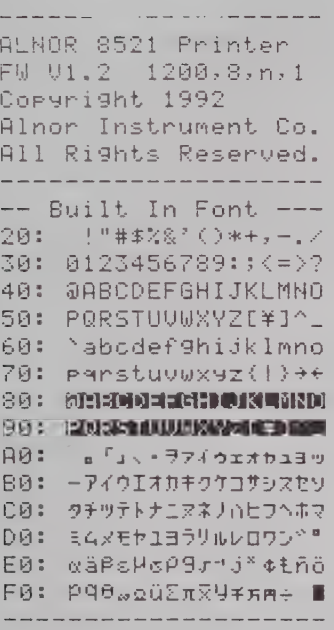


Figure 6. Sample Microprinter Output (Self Test)

LIST OF PARTS

PART NO.	DESCRIPTION
116-159-022	Operator's Manual CompuFlow Microprinter Model 8521
538-493-009	Thermal paper (6 pack, black print)
315-001-000	Paper spindle
321-060-003	Paper cover
638-493-010	CompuFlow Microprinter model 8521
459-000-004	Battery charger (120 VAC input)

MAINTENANCE

The model 8521 Microprinter is virtually maintenance free. There are no user maintainable parts inside the unit. The instrument case never needs to be opened by the user.

If the unit becomes soiled, the case may be cleaned using water and a moist cloth. Do not allow liquids inside the case, or to come in contact with the POWER button on the front of the Microprinter.

Damaged printer cords may be replaced or fixed in the field. Replacement modular plugs are available from the following sources:

AMP (5-555-237-2), MOLEX (87031-0617), or Tandy Radio Shack (279-421). Plug suppliers also carry suitable crimping tools for installation.

CAUTION

DO NOT PRINT WITHOUT HEAT SENSITIVE PAPER IN THE PRINTER.

IF PAPER OTHER THAN THE RECOMMENDED HEAT SENSITIVE PAPER IS USED, THE PRINTING QUALITY AND PRINTER HEAD CANNOT BE GUARANTEED.

Recommended paper is:

1. ALNOR thermal paper
   p/n 538-493-009
   6 pack thermal paper
   black print

The following paper may be used as a substitute:

2. HEWLETT PACKARD thermal paper
   catalog no. 82045A
   2.25″ by 80′
   blue print

3. HEWLETT PACKARD thermal papaer
   catalog no. 82175A
   2.25″ by 80′
   black print

Should any difficulties arise in the operation of the unit, contact either your local Alnor distributor or Alnor Instrument Company. If it becomes necessary to return the unit for repair, see the WARRANTY/REPAIR INFORMATION and INSTRUCTIONS FOR RETURN sections of this manual.

TROUBLESHOOTING GUIDE

A guide to the elimination of minor problems is provided in the table below.

Table 2. Troubleshooting Procedures

SYMPTOM	POSSIBLE CAUSES AND CORRECTIVE ACTION
No Printing	Printer is not connected to mating instrument.
	Mating instrument is not turned on.
	Printer was connected after mating instrument was turned on. Turn mating instrument off, then on again.
	Batteries are dead. Recharge batteries.
	Operating temperature is below allowable range. Allow printer to stabilize at room temperature.
	Out of paper. Install fresh roll.
	Paper installed backwards. Install paper as described in Step by Step Operation.
	Incorrect paper. Use ALNOR thermal paper.
Paper Does Not Advance	Paper is jammed in printer. Make sure paper roll is installed correctly. If necessary, tear off paper at source. Carefully pull remaining paper thru printer at ejection slot.
	Incorrect paper. Use ALNOR thermal paper.
	Printer is not plugged into mating instrument.
	Mating instrument is not turned on.
	Batteries are dead. Recharge batteries.
	Operating temperature is below allowable range.
	Allow printer to stabilize at room temperature.

Table 2. Troubleshooting Procedures (Cont.)

SYMPTOM	POSSIBLE CAUSES AND CORRECTIVE ACTION
Light Printing	Incorrect paper. Use ALNOR thermal paper.
	Operating temperature is below allowable range. Allow printer to stabilize at room temperature.
	Batteries are low. Recharge batteries.
	CONTRAST ADJUSTMENT too low. Turn CONTRAST ADJUSTMENT clockwise.

SPECIFICATIONS

PRINTING METHOD	Thermal
PRINTING SPEED	1 line per two seconds (minimum)
NUMBER OF CHARACTERS	20 characters per line
PAPER	Thermal Thickness .003 in. (66 µm) Width 2.243″ -2.283″ (57-58 mm) Black print
OPERATING RANGE	50° to 104° F (10° to 40° C)
STORAGE RANGE	–22 to 140° F (–30° to 60° C)
PRINTER DIMENSIONS	6-3/8″L x 3-1/2″W x 2-1/2″H (162L x 88.9W x 63.5H mm)
PRINTER WEIGHT	Approx. 1-1/2 lbs (680 grams)
CASE	Black impact resistant plastic with belt clip
CHARGER INPUT	4.5 VDC, 180mA, 2 x 5 mm jack, positive sleeve.
BATTERIES	Rechargeable Ni Cd. Full recharge in 12 to 14 hours yield approximately 500 printed lines. Batteries are not serviceable.
MATING INSTRUMENT	ALNOR CompuFlow thermoanemometer models 8575 or GGA75 (p/n 634-493-603 or p/n 634-493-600), or similar.
SERIAL INPUT	RS-232C, half-duplex, 1200 baud, 8 data bits, 1 start bit, 1 stop bit, no parity. Uses modular 6-position "phone-plug" connector. ASCII 13 (CR) is used as the end-of-line character.
SERIAL CABLE PIN USE	When the printer cable tip is viewed from its mating end with the latch on top, pin 1 is the leftmost pin: 1 not used 2 signal ground 3 serial data input to printer 4 not used 5 instrument ready input to printer 6 not used
SELF TEST	The self test sequence is initiated by pressing the CONTROL BUTTON to its ADVANCE position, and holding it for at least 1 minute. A sample of the self-test output is shown in Figure 6.

NOTES

NOTES

WARRANTY/REPAIR INFORMATION

Contact the distributor in your country, or Alnor Instrument Company directly, before returning your Alnor Microprinter. In North America, contact Alnor before returning your instrument to the factory. See INSTRUCTIONS FOR RETURN. Follow the procedure carefully as it will expedite processing. Failure to follow the procedure will/may cause return of the unit unrepaired. Send your instrument to the factory transportation prepaid. To assure fast turn-around time, fill out this form with as much detail as possible and attach it to the instrument.

Printer Model _____

Serial Number _____

Date of Purchase _____ Where Purchased _____

Describe Malfunction _____

_____

_____

Describe Environment _____

_____

_____

Return Printer to:

Name _____

(Your name or company)

Address _____

_____

Telephone _____

Address Correspondence to:

Name _____

Address _____

Telephone _____

INSTRUCTIONS FOR RETURN

Damaged in Transit

All shipments are carefully examined by Alnor Quality Assurance and carefully packed for shipment. On receipt, if the shipping container appears to have been damaged during shipment, the instrument should be thoroughly inspected. The delivering carrier's papers should be signed noting the apparent damage.

If the instrument itself has been damaged, a claim should be promptly filed against the carrier by the customer. The selling agent will assist the customer by supplying all pertinent shipping information; however, the claim must be filed by the insured.

If the instrument is damaged beyond use, a new order should be placed with Alnor while awaiting reimbursement from the carrier for the damaged instrument.

Call Alnor directly for assistance if necessary.

Malfunction

Please follow these steps should you require factory service or repair of your Alnor Instrument:

1. Write or telephone the Alnor distributor in your country for cost of repair or recalibration and shipping instructions. Obtain a Purchase Order or purchase order number from your Purchasing Department showing instrument model number and cost of repair and/or recalibration. Securely package your instrument in a strong container surrounded by at least two inches (5 cm) of suitable shock-absorbing material. Include the Purchase Order, or Reference the Purchase Order on your packing slip.
2. In North America, telephone the Repair Department at the USA factory for cost of repair or recalibration, Authorization for Repair (AFR) number, and shipping instructions. On instruments being returned to the factory for recalibration, determine whether you prefer:

— Certificate of Calibration, no data (states instrument checked and found to be within accuracy claimed and specifications listed in current literature).

— Certificate of Traceability to National Institute of Standards and Technology (NIST, formerly NBS) with data (states instrument compared with factory standard traceable to NIST, lists of calibration data, i.e., "Standards reads..." and "This instrument reads...")

Obtain a Purchase Order or purchase order number from your Purchasing Department showing instrument model number and cost of repair and/or recalibration. Securely package your instrument in a strong container surrounded by at least two inches (5 cm) of suitable shock-absorbing material. Include the Purchase Order, or Reference the Purchase Order on your packing slip. Mark the outside of the shipping container with the AFR Control number.

3. Forward the instrument prepaid. See back cover for factory addresses.

Please note that instruments received improperly marked or without an accompanying Purchase Order may be returned at your expense. Please also note that if an AFR# has been assigned, it will be cancelled if the instrument is not received by ALNOR within 60 days.

WARRANTY

Alnor Instrument Company (Alnor) warrants this product to be free of defects in material and workmanship for a period of one year from the date of original purchase. If the product should become defective during the warranty period, Alnor will repair it or elect to replace it free of charge under the following conditions:

1. Product is returned postpaid per the instructions for return, located in the owner's manual.

2. Owner submits proof of original date of purchase.

3. Alnor will inspect product for defects in material and workmanship. Alnor's decision as to existence of defect, and in the case of defect, to repair or replace will be final.

THIS WARRANTY IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES EITHER EXPRESS OR IMPLIED. SPECIFICALLY AND WITHOUT LIMITATION, THERE IS NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

This warranty is void if product is misused, used contrary to procedures set forth in the owner's manual, or if product is serviced by anyone other than Alnor's authorized service. This warranty does not cover consumables such as light bulbs, paper, batteries, etc.

Alnor's liability for this product is limited to the above stated warranty and shall not in any event exceed the cost of the product. In no event will Alnor be liable for any direct or consequential damages, including but not limited to lost profits, loss of use, inaccuracies, loss of data, dismantling or reinstallation.

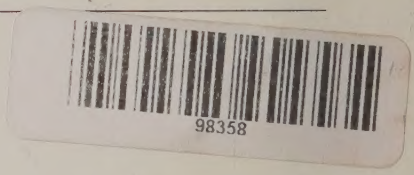
Equipment Log

DATE OF
PURCHASE _____

CALIBRATION RECORD

1. _____	2. _____	3. _____
4. _____	5. _____	6. _____
7. _____	8. _____	9. _____
10. _____	11. _____	12. _____

Notes: _____



ALNOR INSTRUMENT COMPANY
7555 N. LINDER AVE.
SKOKIE ILLINOIS USA 60077
TELEPHONE (708) 677-3500
FAX (708) 677-3539

ALNOR S.A.
71, Boulevard National
92250 LA GARENNE COLOMBES
FRANCE
TEL. 33 (1) 47.86.42.70
FAX 33 (1) 47.86.42.75

247

February, 1993
Printed in USA

Manual #116-159-022 Rev. 1